Attachment One

Antenna Specifications

NSN 5985-01-050-7521-1: This type I antenna assembly shall be brand name or equal to TACO Communications Model D5077 low-profile UHF antennas (single element)

Salient characteristics, mechanical:

The antenna shall be omni-directional, vertical polarized, and designed for mounting on a common, in-line support pipe.

The support pipe shall be 2 ½ inch I.P.S. An adapter kit shall be provided with each antenna for adapting the 2 ½ inch mounting to a 1 ¼ inch mast. All hardware required for mounting and securing the antenna assembly to either the 2 ½ inch support pipe or adapting the 2 ½ inch mounting to a 1 ¼ inch mast shall be provided. The assembly mounting-to-support-pipe shall be coaxial or in-line. The assembly shall be provided with seals to prevent any moisture from entering either the antenna or support pipe.

The antennas shall have a drain hole that will allow any condensate water to drain from the inside of the radome. The fiberglass radomes' outer surface will have a smooth "rich" gel coat finish of pigmented polyurethane resin for long term outdoor operation.

All parts required for mounting the antennas to the 1 ¼ I.P.S. and 2 ½ I.P.S. support pipes shall be captive with the exception of the mounting bolts.

An assembly shall include all components of the antenna array, assembly mount, connector(s), radome and support mast where applicable. Components of the antenna array that are enclosed within the radome assembly shall be securely held in place.

Each antenna shall be terminated at the lower exterior base of the antenna radome with a Type N female coaxial connector.

The antenna mounting method shall such that the antenna can be securely rested on the support pipes and be self-supporting during the mounting process. The antennas must be installable by only one technician.

The antenna assembly shall meet or exceed the required characteristics over the range of operating service conditions specified below:

Temperature	-40 degree C to 60 degree C
Relative Humidity	0% to 100%, including seacoast salt-spray environment
Wind and ice loading	Shall be able to withstand winds Up to 85 knots; with up to ½ inch of radial ice coating.
Precipitation	Shall be able to operate with 7 of rainfall per hour.

Specifications

The antenna shall be sufficiently rugged and weather-proof to operate unattended and continuously for 10 years in adverse environment, i.e, fog, rain, snow, hail, salt-spray, high winds, etc....

Leakage resistance as measured at the connector shall not be less than one megohm.

All metal parts of the antennas shall be DC shorted to ground including from the center pin of the input connector to the outer connector of the input connector.

A ground terminal shall be provided on the assembly to readily permit connection of an external AWG #6 wire for purpose of lightning protection.

Antenna weight shall not exceed 5 pounds.

Length of antenna shall not exceed 32 inches.

Salient characteristics, electrical:

The antenna shall meet or exceed the following characteristics over the frequency range 225 MHz to 400 MHz:

VSWR	Shall be less than or equal to 1.6:1
Terminal impedance	50 ohms plus/minus 5%
RF power rating	Shall be able to radiate 100W carrier continuously without visible damage or deformation of the antenna: the change in VSWR shall be less than 10% over the frequency range.
Radiation, Omni-directional	Plus/minus 1.0 dB for 360 degrees of rotation at 0 degrees elevation.
Radiation, vertical peak or deviation	0 degrees, plus/minus 10 degrees
Elevation Beamwidth	The antennas shall have one or more major lobes in the azimuth pattern whose maximum relative gain shall exceed the minimum relative gain by more than 3 dB. Manufacturer shall show all the lobes down to 20 dB below the major lobe on the radiation pattern.
Antenna insulation resistance	1 megohm to infinity (electrical open)

Specifications

NSN 5985-01-050-7522: This type I antenna assembly shall be brand name or equal to TACO Communications Model D5076 low-profile VHF antennas, single element

Salient characteristics, mechanical:

The antenna shall be omni-directional, vertical polarized, and designed for mounting on a common, in-line support pipe.

The support pipe shall be 2 ½ inch I.P.S. An adapter kit shall be provided with each antenna for adapting the 2 ½ inch mounting to a 1 ¼ inch mast. All hardware required for mounting and securing the antenna assembly to either the 2 ½ inch support pipe or adapting the 2 ½ inch mounting to a 1 ¼ inch mast shall be provided. The assembly mounting-to-support-pipe shall be coaxial or in-line. The assembly shall be provided with seals to prevent any moisture from entering either the antenna or support pipe.

The antennas shall have a drain hole that will allow any condensate water to drain from the inside of the radome. The fiberglass radomes'outer surface will have a smooth "rich" gel coat finish of pigmented polyurethane resin for long term outdoor operation

All parts required for mounting the antennas to the 1 ¼ I.P.S. and 2 ½ I.P.S. support pipes shall be captive with the exception of the mounting bolts.

An assembly shall include all components of the antenna array, assembly mount, connector(s), radome and support mast where applicable. Components of the antenna array that are enclosed within the radome assembly shall be securely held in place.

Each antenna shall be terminated at the lower exterior base of the antenna radome with a Type N female coaxial connector.

The antenna mounting method shall such that the antenna can be securely rested on the support pipes and be self-supporting during the mounting process. The antennas must be installable by only one technician.

The antenna assembly shall meet or exceed the required characteristics over the range of operating service conditions specified below:

Temperature	-40 degree C to 60 degree C
Relative Humidity	0% to 100%, including seacoast salt-spray environment
Wind and ice loading	Shall be able to withstand winds Up to 85 knots; with up to ½ inch of radial ice coating.
Precipitation	Shall be able to operate with 7 of rainfall per hour.

The antenna shall be sufficiently rugged and weather-proof to operate unattended and continuously for 10 years in adverse environment, i.e, fog, rain, snow, hail, salt-spray, high winds, etc....

All metal parts of the antennas, including the center pin of the input connector, shall have a low (less than an ohm) DC resistance to ground.

Grounding shall be accomplished after securing the antenna to the mast. A means shall be provided to attaché a customer supplied AWG #6 ground wire to the external antenna ground. Any terminals required to ground the antenna shall be provided.

Antenna weight shall not exceed 14 pounds.

Length of antenna shall not exceed 87 inches.

Salient characteristics, electrical:

The antenna shall meet or exceed the following characteristics over the frequency range 118 MHz to 136 MHz and 225 MHz to 400 MHz:

VSWR	Shall be less than or equal to 1.8:1 VHF and
Terminal impedance	50 ohms plus/minus 5%
RF power rating	Shall be able to radiate 50W carrier continuously without visible damage or deformation of the antenna: the change in VSWR shall be less than 10% over the frequency range.
Radiation, Omni-directional	Plus/minus 1.5 dB for 360 degrees of rotation at 0 degrees elevation.
Radiation, vertical peak or deviation	0 degrees, plus/minus 10 degrees
Elevation Beamwidth	The antennas shall have one or more major lobes in the azimuth pattern whose maximum relative gain shall exceed the minimum relative gain by more than 3 dB. Manufacturer shall show all the lobes down to 20 dB below the major lobe on the radiation pattern.
Antenna insulation resistance	1 megohm to infinity (electrical open)